We claim:

1. A process for separating a liquid mixture of at least two components A and B which form an azeotrope with one another, optionally together with further components, which comprises

   i) distilling the mixture to be separated in the presence of an auxiliary H which with each of the two components A and B forms a binary azeotrope AH or BH which has a boiling point lower than that of H, and

   ii) isolating an A,H-containing fraction which is depleted in B compared to the mixture to be separated and a B,H-containing fraction which is depleted in A compared to the mixture to be separated.

2. A process as claimed in claim 1, wherein the auxiliary H is additionally able to form a ternary azeotrope with the components A and B.

3. A process as claimed in claim 1, wherein the mixture to be separated is introduced continuously into a column for the distillation.

4. A process as claimed in claim 3, wherein at least part of the auxiliary is introduced into the column together with the mixture to be separated.

5. A process as claimed in claim 3, wherein at least part of the auxiliary H is introduced at the top and/or in the upper region of the column.

6. A process as claimed in claim 5, wherein the auxiliary H is obtained as bottom product and is recirculated at least partly to the top and/or into the upper region of the column.

7. A process as claimed in claim 3, wherein the A,H-containing fraction is taken off at a point above the feed point for the mixture to be separated and the B,H-containing fraction is taken off at a point below the feed point for the mixture to be separated.

8. A process as claimed in claim 5, wherein the mass flow of the auxiliary H introduced is from 0.5 to 15 times the mass flow of the mixture to be separated, based on the part different from H.

9. A process as claimed in claim 1, wherein the binary azeotrope AH and/or BH is a heteroazeotrope.

10. A process as claimed in claim 9, wherein the liquid or liquefied A,H-containing and/or B,H-containing fraction is subjected to a phase separation to give an A-rich or B-rich phase and an H-rich phase and the H-rich phase is returned to the column.

11. A process as claimed in claim 1, wherein the mixture to be separated is a mixture comprising a first component selected from among chlorinated hydrocarbons and monocyclic C_6-C_{10}-aromatics and a second component selected from among C_3-C_8-alkanols and the auxiliary used is water.

12. A process as claimed in claim 11, wherein the chlorinated hydrocarbon is perchloroethylene and the alkanol is n-butanol and the mixture optionally further comprises butyl chloride.

13. A process as claimed in claim 12, wherein the liquefied n-butanol/water fraction is subjected to a phase separation to give an n-butanol-rich phase and a water-rich phase and the n-butanol-rich phase is separated by distillation into a fraction enriched in n-butanol and a fraction depleted in n-butanol.

14. A process as claimed in claim 12, wherein a fraction which comprises butyl chloride and water and is largely free of perchloroethylene and n-butanol is additionally obtained as lowest-boiling fraction.

15. A process as claimed in claim 11, wherein the auxiliary H further comprises a base.